

Study finds greater risk of extinction among high diversity amphibian groups

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Simon Fraser University biologist Dan Greenberg examined evolutionary patterns of modern extinction risk across more than 300 amphibian groups and found that species from groups with high ongoing diversification are at greater risk of extinction than slowly diversifying lineages Credit: SFU

A new study by Simon Fraser University biologists Dan Greenberg and Arne Mooers offers clues to why more than 30 per cent of amphibians, including frogs, newts, toads and salamanders, are at risk of extinction.

The researchers examined [evolutionary patterns](#) of modern extinction risk across more than 300 [amphibian](#) groups and found that species from groups with high ongoing diversification are at greater risk of extinction than slowly diversifying lineages. The research is published this month in the journal *Evolution Letters*.

"Amphibian groups that rapidly produce [new species](#) tend to be highly specialized to a narrow range of particular locations and environments, but in turn the specialized [amphibian species](#) generated by these groups are also at a greater risk of being lost forever," says lead author Greenberg. "Speciation and extinction can therefore be two sides of the same coin."

Consistent with the hypothesis that speciation and extinction may go hand-in-hand, the researchers found that a disproportionate number of endangered species were found in amphibian groups that showed signs of having speciated rapidly in the near past. These fast-evolving groups also tended to have many species with very small geographic ranges.

This pattern is not found in mammals and birds, suggesting that the way birds and mammals diversify is fundamentally different from how amphibians diversify.

This study has important implications for explaining how species rise and fall over evolutionary time, and gives scientists clues as to how to safeguard the present diversity of species.

According to Greenberg: "For the high-achieving, fast-speciating amphibian groups, some of which are at risk of losing all of their

species, saving just 20 [species](#) could safeguard an estimated 1.4 billion years of evolutionary history."

Provided by Simon Fraser University

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